CLAIMS

1. Apparatus for exposing, in a binary manner, a photoreceptive surface having a width and having relative movement with an irradiator in a direction perpendicular to the width, comprising:

an irradiator comprising a plurality of rows of substantially identical light sources, each said row of light sources having an axis generally directed along said width, said rows being spaced in a direction generally perpendicular to said width to form a generally rectangular array of light sources; and

a controller that controls activation of the light sources to selectively irradiate portions of said photoreceptive surface to form a latent image thereon during said relative motion, using fewer than all of the light sources available for illuminating the pixel, such that each of said portion that is irradiated is exposed to a same amount of light.

2. Apparatus for exposing, in a binary manner a photoreceptive surface having a width and having relative movement with an irradiator in a direction perpendicular to the width, comprising:

an irradiator comprising a plurality of rows of substantially identical light sources, each said row of light sources having an axis generally directed along said width, said rows being spaced in a direction generally perpendicular to said width to form a generally rectangular array of light sources; and

a controller that controls activation of the light sources to selectively irradiate portions of said photoreceptive surface to form a latent image thereon during said relative motion, using fewer than all of the light sources available for illuminating the pixel, such that each of said portion that is irradiated is exposed to a same amount of light,

wherein, when one or more of the rows of light sources is formed of a plurality of partially overlapping partial rows of light sources, light sources outside the overlap are controlled by said controller as aforesaid.

3. Apparatus according to claim 1 or claim 2 wherein the light sources comprise light emitting diodes.

4. Apparatus according to any of claims 1-3, wherein each row of said plurality of rows of light sources are on a different print head.

5. Apparatus according to any of claims 1-3, wherein more than one of said plurality of rows of light sources are on a single print head.

6. Apparatus according to claim 5, wherein all of said plurality of rows of light sources are on a single print head.

7. Apparatus according to claim 5 or claim 6 wherein at least two of said plurality of rows are formed on a monolithic substrate.

8. Apparatus according to any of the preceding claims wherein said plurality of rows comprises fewer than four rows.

9. Apparatus according to any of claims 1-7 wherein said plurality of rows comprises between five and nine rows.

10. Apparatus according to any of claims 1-7 wherein said plurality of rows comprises ten of more rows.

11. Apparatus according to any of the preceding claims wherein said controller is operative to expose pixels along a column of pixels utilizing a light source situated in said column chosen in a random or quasi-random manner.

12. Apparatus according to any of claims 1-10, wherein said light sources are chosen in accordance with a fixed repeat.

13. Apparatus according to any of the preceding claims wherein all of the pixels in a row on said photoreceptor are exposed utilizing a same row of light sources.

14. Apparatus according to claim 12 wherein the light sources from which the exposing light sources are chosen, comprise a set of light sources, chosen to minimize artifacts.

15. Apparatus according to any of claims 1-12 wherein at least some pixels in a row are exposed utilizing light sources from different rows of light sources.

16. Apparatus according to any of the preceding claims wherein said controller is operative to expose pixels along a column of pixels utilizing a plurality of light sources situated in said column.

17. Apparatus according to any of the preceding claims and including a motor that provides motion of said photoreceptor.

18. Apparatus according to any of the preceding claims and including a position sensor that provides an indication of position of said photoreceptor with respect to said rows of light sources.

19. Apparatus according to claim 18 wherein said controller activates said light sources, responsive to said indication of position.

20. Apparatus according to claim any of the preceding claims wherein the photoreceptive surface is a charged photoconductive surface and wherein exposure to light of the light sources selectively discharges the surface.

21. Printing apparatus comprising:

apparatus according to claim 20; and

a developer that develops the latent image with a colored toner to form a developed image thereon;

said printing apparatus including a transfer station at which said developed image is transferred to a final substrate.

22. Apparatus according to claim 21 wherein the colored toner is a powdered toner.

23. Apparatus according to claim 21 wherein the colored toner is a liquid toner.

24. Apparatus according to any of claims 1-20 wherein the photoreceptor is a photosurface and wherein exposure from said light sources forms a latent image in said photosurface that can be chemically developed to form a visible image.

25. Photo-printing apparatus, comprising:

a latent image forming device for a photosurface according to claim 24; and

a developer that chemically develops the latent image to form a visible image.

26. Photo-printing apparatus, comprising:

a plurality of latent image forming devices for a photosurface according to claim 24; each said device emitting light of a different color; and

a developer that chemically develops the latent image to form a visible image.

27. Apparatus according to claim 26, wherein the colors include red, green and blue.

28. A method of pixelized image formation on a photosensitive surface, comprising:

providing relative motion of the photosensitive surface relative to a multiplicity of light sources, such that pixels on the surface pass a plurality of said light sources; and

exposing a plurality of the pixels of the surface to one or more, but fewer than the plurality, of said light sources, such that the exposure of the exposed pixels is the same.

29. A method of pixelized image formation on a photosensitive surface, comprising:

providing relative motion of the photosensitive surface relative to a multiplicity of light sources, such that pixels on the surface pass a plurality of said light sources, wherein said multiplicity of light sources are formed in rows, each said row being formed of a single light source for each position along the row or formed by a plurality of partially overlapping rows of light sources; and

exposing a plurality of the pixels of the surface to one or more, but fewer than the plurality, of said light sources, outside of said overlap, where said overlap is present, such that the exposure of the exposed pixels is the same.

30. A method according to claim 28 or claim 29, wherein exposing comprises exposing said pixel to a plurality of said light sources.

31. A method according to claim 28 or claim 29, wherein exposing comprises exposing said pixel to only one of said light sources.

32. A method according to any of claims 28-31 wherein the at least one pixel is exposed to one or more of the light sources chosen randomly or quasi-randomly.

33. A method according to any of claims 28-31 wherein said one or more light sources is chosen in accordance to a predetermined repeat to reduce visual artifacts.

34. A method according to any of claims 28-33 wherein a plurality of pixels are exposed in accordance with the method.

35. A method according to any of claims 28-34, wherein the image thus formed is a latent image and including developing the latent image to form a visible image.

36. A method according to claim 35 wherein said developing comprises contacting the surface with a toner.

37. A method according to claim 35 wherein developing comprises chemical development.